[0133] Software in the sense of the present description comprises software code as such comprising code means or portions or a computer program or a computer program product for performing the respective functions, as well as software (or a computer program or a computer program product) embodied on a tangible medium such as a computer-readable (storage) medium having stored thereon a respective data structure or code means/portions or embodied in a signal or in a chip, potentially during processing thereof.

[0134] The present invention also covers any conceivable combination of method steps and operations described above, and any conceivable combination of nodes, apparatuses, modules or elements described above, as long as the above-described concepts of methodology and structural arrangement are applicable.

[0135] In view of the above, there are provided measures for uplink control information signaling in inter-site downlink carrier aggregation scenarios. Such measures exemplarily comprise obtaining uplink transmission resources for an uplink control information transmission on said primary carrier, deriving a receiving timing for said uplink control information transmission, detecting said uplink control information transmission on said primary carrier based on said uplink transmission resources and said receiving timing, and decoding uplink control information from said uplink control information transmission.

[0136] Even though the invention is described above with reference to the examples according to the accompanying drawings, it is to be understood that the invention is not restricted thereto. Rather, it is apparent to those skilled in the art that the present invention can be modified in many ways without departing from the scope of the inventive idea as disclosed herein.

LIST OF ACRONYMS AND ABBREVIATIONS

[0137] 3GPP 3rd Generation Partnership Project

[0138] A/N acknowledgment/negative acknowledgement

[0139] AMC adaptive modulation and coding

[0140] C-RNTI cell radio network temporary identifier

[0141] CA carrier aggregation

[0142] CQI channel quality indicator

[0143] E-UTRA Evolved Universal Terrestrial Radio Access

[0144] eNB evolved NodeB

[0145] FDD frequency division duplex

[0146] L**1** Layer **1**

[0147] L**2** Layer **2**

[0148] LTE Long Term Evolution

[0149] PCell primary cell

[0150] PDCCH physical downlink control channel

[0151] PHICH physical hybrid ARQ indicator channel

[0152] PRB physical resource blocks

[0153] PS packet scheduling

[0154] PUCCH physical uplink control channel

[0155] PUSCH physical uplink shared channel

[0156] RRM radio resource management

[0157] SCell secondary cell

[0158] SIB system information block

[0159] TA timing advance

[0160] TDD time division duplex

[0161] UCI uplink control information

[0162] UE user equipments

1. A method of a device providing primary cell functionality for communication in inter-site carrier aggregation mode aggregating a primary carrier and at least one secondary carrier, comprising

transmitting a downlink transmission, said downlink transmission being used as a timing reference;

receiving an uplink transmission comprising at least a time difference;

calculating a first receiving timing based on an estimated second receiving timing at said device, said time difference and a predetermined timing advance value; and

transmitting a first inter-site control transmission comprising at least a difference between said calculated first receiving timing and a timing of said transmitting said downlink transmission.

2. The method according to claim **1**, further comprising

transmitting a second inter-site control transmission comprising at least detection information for detection of certain downlink transmission resources of a downlink control transmission on said primary carrier, said certain downlink transmission resources being indicative of at least uplink transmission resources for an uplink control information transmission on said primary carrier.

3. The method according to claim **1**, further comprising transmitting a third inter-site control transmission comprising at least uplink transmission resources for an uplink control information transmission on said primary carrier.

4. The method according to claim **1**, wherein, in relation to said calculating said method further comprises

computing said first receiving timing UL_Rx_PCell_at_pico based on said estimated second receiving timing at said device UL_Rx_PCell_at_macro, said time difference T_diff and said predetermined timing advance value TA using the formula

$$UL\_Rx\_\text{PCell\_at\_pico}=UL\_Rx\_\text{PCell\_at macro}-T\_\text{diff}-TA+4\text{ms}.$$

5. The method according to claim **1**, wherein

the method is operable at or by a base station or access node of a cellular system, and/or

the method is operable in at least one of a LTE and a LTE-A cellular system, and/or

said uplink transmission resources comprise at least one of a frequency, a transmission format and a time slot, and/or

said certain downlink transmission resources comprise at least one of a frequency and a time slot of a physical downlink control channel, and/or

said uplink control information comprise at least one of a channel quality indicator and a hybrid automatic repeat request acknowledgement/negative acknowledgement information, and/or

each of said inter-site control transmissions is a X2 signaling, and/or

said detection information comprises at least one of a search space within said downlink control transmission and an identification information of an intended receiver.

6. (canceled)

7. (canceled)

8. (canceled)

9. (canceled)

10. (canceled)